



## AMES RESEARCH CENTER

National Aeronautics and Space Administration

Ames Research Center, Moffett Field, California 94035-1000

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### 12-Foot Pressure Wind Tunnel 12' PWT

#### Primary Use:

The facility is used primarily for high Reynolds number testing, including the development of high-lift systems for commercial transports and military aircraft, high angle-of-attack testing of maneuvering aircraft, and high Reynolds number research.

#### Capability:

- Mach Number: 0-0.6
- Reynolds Number per foot 0.1-12X10<sup>6</sup>
- Stagnation Pressure, PSIA: 2.0 - 90
- Temperature Range: 540-610° R
- Closed circuit, single return, variable density, closed throat, wind tunnel with exceptionally low turbulence.
- Model-support systems available.
  - Strut with variable pitch and roll capability.
  - High angle-of-attach turntable system.
  - Dual-strut turntable mechanism for high-lift testing.
  - Semispan mounting system.
- Internal strain-gage balances used for force and moment testing.
- Capability for measuring multiple fluctuating pressures.
- Temperature-controlled auxiliary high-pressure (3000 psi).
- Data system
  - Programmable Gain/Amplifier/Filter Units (PGAFUs) in conjunction with solid state multiplexers feeding multiple 16-bit digitizers.
  - Up to 240 5-wire analog channels for each model support.
  - 96 amplifier channels routinely available and can be expanded up to the available institutional

wiring limitations.

- ❑ 16 channels of 16-bit digital input data can be inserted into the digitized data stream.
- ❑ Up to 2048 pressures will be acquired using Electronically Scanned Pressure modules (ESPs).
- ❑ Significant amounts of facility dedicated, real-time processing and display will be available using a combination of six PC class processors running real-time operating systems coordinated by a midrange UNIX-based workstation.
- ❑ Main computations will be performed in near-time also using the dedicated midrange workstation processor.
- ❑ Point by point plotting will be available.
- User interaction will be X-terminal based.

#### **Status:**

- **Originally Built** - 1994 (Restored)
- **Major Mods** - None
- **Current Status** - Operational
- **Future Status** - Operational

#### **Utilization:**

- **Who/How Much** - Estimated; industry and cooperative 60%, Other government agencies 25%, NASA research 15%.
- **User Fees** - T.B.D.
- **Legislated Restrictions** - None. National facility available to industry, DOD, and NASA development and research.

#### **Capital Value:**

Replacement cost \$110 Million

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For further information, contact

NASA Ames Research Center

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